

## Complete Summary

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### GUIDELINE TITLE

Recommended antimicrobial agents for the treatment and postexposure prophylaxis of pertussis.

### BIBLIOGRAPHIC SOURCE(S)

Tiwari T, Murphy TV, Moran J. Recommended antimicrobial agents for the treatment and postexposure prophylaxis of pertussis: 2005 CDC guidelines. MMWR Recomm Rep 2005 Dec 9;54(RR-14):1-16. [82 references] [PubMed](#)

### GUIDELINE STATUS

This is the current release of the guideline.

## COMPLETE SUMMARY CONTENT

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## SCOPE

### DISEASE/CONDITION(S)

Pertussis

### GUIDELINE CATEGORY

Prevention  
 Treatment

### CLINICAL SPECIALTY

Family Practice  
 Infectious Diseases

Internal Medicine  
Pediatrics  
Preventive Medicine

## INTENDED USERS

Physicians

## GUIDELINE OBJECTIVE(S)

- To broaden the spectrum of macrolide agents available for pertussis treatment and postexposure prophylaxis
- To update previous Centers of Disease Control and Prevention recommendations

## TARGET POPULATION

- Infants, children, adolescents, and adults with pertussis or who are at risk for development of pertussis
- Close contacts of a patient with pertussis

## INTERVENTIONS AND PRACTICES CONSIDERED

Treatment/Prevention

1. Macrolide agents (azithromycin, clarithromycin, and erythromycin)
2. Alternative agent (trimethoprim-sulfamethoxazole [TMP-SMZ])
3. Postexposure prophylaxis
4. Special considerations for infants aged <6 months
5. Consideration of potential adverse effects of treatment

## MAJOR OUTCOMES CONSIDERED

- Effectiveness of erythromycin treatment on reducing symptoms of pertussis
- Effectiveness of erythromycin treatment and prophylaxis on reducing the spread of pertussis
- Effectiveness of azithromycin and clarithromycin for treatment of pertussis patients

## METHODOLOGY

### METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

### DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

To update the existing recommendations, a literature search and review was conducted for in vivo studies and clinical trials that were conducted during 1970-

2004 and used clarithromycin or azithromycin for the treatment and prophylaxis of pertussis (see Table 3 in the original guideline document).

#### NUMBER OF SOURCE DOCUMENTS

Not stated

#### METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Not stated

#### RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

#### METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review with Evidence Tables

#### DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

#### METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

#### RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

#### COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

#### METHOD OF GUIDELINE VALIDATION

Peer Review

#### DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Not stated

### RECOMMENDATIONS

#### MAJOR RECOMMENDATIONS

Note from the National Guideline Clearinghouse (NGC): The recommendations in this report were developed to broaden the spectrum of antimicrobial agents that are available for treatment and postexposure prophylaxis of pertussis. They include updated information on macrolide agents other than erythromycin (azithromycin and clarithromycin) and their dosing schedule by age group. Readers are referred to the original guideline document for information on clinical manifestation, differential diagnoses, and use of vaccination to prevent pertussis.

## General Principles

### Treatment

The macrolide agents erythromycin, clarithromycin, and azithromycin are preferred for the treatment of pertussis in persons aged  $\geq 1$  month. For infants aged  $< 1$  month, azithromycin is preferred; erythromycin and clarithromycin are not recommended. For treatment of persons aged  $\geq 2$  months, an alternative agent to macrolides is trimethoprim-sulfamethoxazole (TMP-SMZ) (see the Table below).

The choice of antimicrobial for treatment or prophylaxis should take into account effectiveness, safety (including the potential for adverse events and drug interactions), tolerability, ease of adherence to the regimen prescribed, and cost. Azithromycin and clarithromycin are as effective as erythromycin for treatment of pertussis in persons aged  $\geq 6$  months, are better tolerated, and are associated with fewer and milder side effects than erythromycin. Erythromycin and clarithromycin, but not azithromycin, are inhibitors of the cytochrome P450 enzyme system (CYP3A subclass) and can interact with other drugs that are metabolized by this system. Azithromycin and clarithromycin are more resistant to gastric acid, achieve higher tissue concentrations, and have a longer half-life than erythromycin, allowing less frequent administration (1-2 doses per day) and shorter treatment regimens (5-7 days). Erythromycin is available as generic preparations and is considerably less expensive than azithromycin and clarithromycin.

### Postexposure Prophylaxis

A macrolide can be administered as prophylaxis for close contacts of a person with pertussis if the person has no contraindication to its use. The decision to administer postexposure chemoprophylaxis is made after considering the infectiousness of the patient and the intensity of the exposure, the potential consequences of severe pertussis in the contact, and possibilities for secondary exposure of persons at high risk from the contact (e.g., infants aged  $< 12$  months). For postexposure prophylaxis, the benefits of administering an antimicrobial agent to reduce the risk for pertussis and its complications should be weighed against the potential adverse effects of the drug. Administration of postexposure prophylaxis to asymptomatic household contacts within 21 days of onset of cough in the index patient can prevent symptomatic infection. Coughing (symptomatic) household members of a pertussis patient should be treated as if they have pertussis. Because severe and sometimes fatal pertussis-related complications occur in infants aged  $< 12$  months, especially among infants aged  $< 4$  months, postexposure prophylaxis should be administered in exposure settings

that include infants aged <12 months or women in the third trimester of pregnancy. The recommended antimicrobial agents and dosing regimens for postexposure prophylaxis are the same as those for treatment of pertussis (see the Table below).

#### Special Considerations for Infants Aged <6 Months When Using Macrolides for Treatment or Postexposure Prophylaxis

The U.S. Food and Drug Administration (FDA) has not licensed any macrolide for use in infants aged <6 months. Data on the safety and efficacy of azithromycin and clarithromycin use among infants aged <6 months are limited.

Data from subsets of infants aged 1 to 5 months (enrolled in small clinical studies) suggest similar microbiologic effectiveness of azithromycin and clarithromycin against pertussis as with older infants and children. If not treated, infants with pertussis remain culture-positive for longer periods than older children and adults. These limited data support the use of azithromycin and clarithromycin as first-line agents among infants aged 1 to 5 months, based on their in vitro effectiveness against *Bordetella pertussis*, their demonstrated safety and effectiveness in older children and adults, and more convenient dosing schedule.

For treatment of pertussis among infants aged <1 month (neonates), no data are available on the effectiveness of azithromycin and clarithromycin. Abstracts and published case series describing use of azithromycin among infants aged <1 month report fewer adverse events compared with erythromycin; to date, use of azithromycin in infants aged <1 month has not been associated with infantile hypertrophic pyloric stenosis (IHPS). Therefore, for pertussis, azithromycin is the preferred macrolide for postexposure prophylaxis and treatment of infants aged <1 month. In this age group, the risk for acquiring severe pertussis and its life-threatening complications outweigh the potential risk for IHPS that has been associated with erythromycin. Infants aged <1 month who receive a macrolide should be monitored for IHPS and other serious adverse events.

#### Safety

A comprehensive description of the safety of the recommended antimicrobials is available in the package insert, or in the latest edition of the Red Book: Pharmacy's Fundamental Reference. A macrolide is contraindicated if there is history of hypersensitivity to any macrolide agent (see Table 5 in the original guideline document). Neither erythromycin nor clarithromycin should be administered concomitantly with astemizole, cisapride, pimazole, or terfenadine. The most commonly reported side effects of oral macrolides are gastrointestinal (e.g., nausea, vomiting, abdominal pain and cramps, diarrhea, and anorexia) and rashes; side effects are more frequent and severe with erythromycin use.

#### Specific Antimicrobial Agents

##### Azithromycin

Azithromycin is available in the United States for oral administration as azithromycin dihydrate (suspension, tablets, and capsules). It is administered as a single daily dose.

Recommended regimen:

- Infants aged <6 months: 10 mg/kg per day for 5 days.
- Infants and children aged  $\geq$ 6 months: 10 mg/kg (maximum: 500 mg) on day 1, followed by 5 mg/kg per day (maximum: 250 mg) on days 2-5.
- Adults: 500 mg on day 1, followed by 250 mg per day on days 2 to 5.
- Side effects include abdominal discomfort or pain, diarrhea, nausea, vomiting, headache, and dizziness. Azithromycin should be prescribed with caution to patients with impaired hepatic function. All patients should be cautioned not to take azithromycin and aluminum- or magnesium-containing antacids simultaneously because the latter reduces the rate of absorption of azithromycin. Monitoring of patients is advised when azithromycin is used concomitantly with agents metabolized by the cytochrome P450 enzyme system and with other drugs for which the pharmacokinetics change (e.g., digoxin, triazolam, and ergot alkaloids). Drug interactions reactions similar to those observed for erythromycin and clarithromycin have not been reported. Azithromycin is classified as an FDA Pregnancy Category B drug.

## Erythromycin

Erythromycin is available in the United States for oral administration as erythromycin base (tablets and capsules), erythromycin stearate (tablets), and erythromycin ethylsuccinate (tablets, powders, and liquids). Because relapses have been reported after completion of 7-10 days of treatment with erythromycin, a 14-day course of erythromycin is recommended for treatment of patients with pertussis or for postexposure prophylaxis of close contacts of pertussis patient.

Recommended regimen:

- Infants aged <1 month: not preferred because of risk for IHPS. Azithromycin is the recommended antimicrobial agent. If azithromycin is unavailable and erythromycin is used, the dose is 40-50 mg/kg per day in 4 divided doses. These infants should be monitored for IHPS.
- Infants aged  $\geq$ 1 month and older children: 40-50 mg/kg per day (maximum: 2 g per day) in 4 divided doses for 14 days.
- Adults: 2 g per day in 4 divided doses for 14 days

Gastrointestinal irritation, including epigastric distress, abdominal cramps, nausea, vomiting, and diarrhea, are the most common adverse effects associated with oral administration of erythromycin. Symptoms are dose-related. Some formulations with enteric-coated tablets and the ester derivatives (e.g., ethylsuccinate) can be taken with food to minimize these side effects. Hypersensitivity reactions (e.g., skin rashes, drug fever, or eosinophilia), cholestatic hepatitis, and sensorineural hearing loss have occurred after administration of macrolides; severe reactions such as anaphylaxis are rare.

An increased risk for IHPS has been reported in neonates during the month after erythromycin administration. In one case, pyloric stenosis occurred in a

breastfeeding infant whose mother took erythromycin. In 1999, a cluster of seven cases of IHPS were reported among neonates (all aged <3 weeks when prophylaxis was started) who had taken erythromycin after exposure to a pertussis patient. In a cohort study, erythromycin prophylaxis was causally associated with IHPS (seven cases out of 157 erythromycin exposed infants versus zero cases out of 125 infants with no erythromycin exposure [relative risk: infinity (95% confidence interval = 1.7-infinity)]).

The high case-fatality ratio of pertussis in neonates underscores the importance of preventing pertussis among exposed infants. Health-care providers who prescribe erythromycin rather than azithromycin to newborns should inform parents about the possible risks for IHPS and counsel them about signs of IHPS.

Erythromycin is contraindicated if there is history of hypersensitivity to any macrolide agent. Erythromycin should not be administered concomitantly with astemizole, cisapride, pimazole, or terfenadine. Rare cases of serious cardiovascular adverse events, including electrocardiographic QT/QT<sub>c</sub> interval prolongation, cardiac arrest, torsades de pointes, and other ventricular arrhythmias, have been observed after concomitant use of erythromycin with these drugs.

Erythromycin is an inhibitor of the cytochrome P450 enzyme system (CYP3A subclass). Coadministration of erythromycin and a drug that is primarily metabolized by CYP3A can result in elevations in drug concentrations that could increase or prolong both the therapeutic and adverse effects of the concomitant drug. Drugs that are metabolized by CYP3A include alfentanil, bromocriptine, cyclosporine, carbamazepine, cilostazol, disopyramide, dihydroergotamine, ergotamine, lovastatin and simvastatin, methylprednisolone, quinidine, rifabutin, vinblastine, tacrolimus, triazolo-benzodiazepines (e.g., triazolam and alprazolam) and related benzodiazepines, and sildenafil. In addition, reports exist of drug interactions of erythromycin with drugs not thought to be metabolized by CYP3A, including zidovudine, hexobarbital, phenytoin, and valproate, theophylline, digoxin, and oral anticoagulants.

Erythromycin is classified as an FDA Pregnancy Category B drug. Animal reproduction studies have failed to demonstrate a risk to the fetus, but no adequate or well-controlled studies in humans exist.

### Clarithromycin

Clarithromycin is available in the United States for oral administration as granules for oral suspension and tablets.

#### Recommended regimen:

- Infants aged <1 month: not recommended.
- Infants and children aged ≥1 month: 15 mg/kg per day (maximum: 1 g per day) in 2 divided doses each day for 7 days.
- Adults: 1 g per day in two divided doses for 7 days.

The most common adverse effects associated with clarithromycin include epigastric distress, abdominal cramps, nausea, vomiting, and diarrhea. Hypersensitivity reactions (e.g., skin rashes, drug fever, or eosinophilia), hepatotoxicity, and severe reactions such as anaphylaxis are rare. Because of its similarity to erythromycin, both chemically and metabolically, clarithromycin should not be administered to infants aged <1 month because it is unknown if the drug can be similarly associated with IHPS. The drug is contraindicated if there is history of hypersensitivity to any macrolide agent. Similar to erythromycin, clarithromycin should not be administered concomitantly with astemizole, cisapride, pimazole, or terfenadine. Clarithromycin inhibits the cytochrome P450 enzyme system (CYP3A subclass), and coadministration of clarithromycin and a drug that is primarily metabolized by CYP3A can result in elevations in drug concentrations that could increase or prolong both the therapeutic and adverse effects of the concomitant drug. Clarithromycin can be administered without dosage adjustment in patients with impaired hepatic function and normal renal function; however, drug dosage and interval between doses should be reassessed in the presence of impaired renal function. Clarithromycin is classified by FDA as a Pregnancy Category C drug. Animal reproduction studies have shown an adverse effect on the fetus; no adequate or well-controlled studies in humans exist.

#### Alternate Agent (Trimethoprim-Sulfamethoxazole [TMP-SMZ])

Data from clinical studies indicate that TMP-SMZ is effective in eradicating *B. pertussis* from the nasopharynx. TMP-SMZ is used as an alternative to a macrolide antibiotic in patients aged  $\geq 2$  months who have contraindication to or cannot tolerate macrolide agents, or who are infected with a macrolide-resistant strain of *B. pertussis*. Macrolide-resistant *B. pertussis* is rare. Because of the potential risk for kernicterus among infants, TMP-SMZ should not be administered to pregnant women, nursing mothers, or infants aged <2 months.

#### Recommended regimen:

- Infants aged <2 months: contraindicated.
- Infants aged  $\geq 2$  months and children: trimethoprim 8 mg/kg per day, sulfamethoxazole 40 mg/kg per day in 2 divided doses for 14 days.
- Adults: trimethoprim 320 mg per day, sulfamethoxazole 1,600 mg per day in 2 divided doses for 14 days.

Patients receiving TMP-SMZ might experience gastrointestinal adverse effects, hypersensitivity skin reactions, and rarely, Stevens-Johnson syndrome, toxic epidermal necrolysis, blood dyscrasias, and hepatic necrosis. TMP-SMZ is contraindicated if there is known hypersensitivity to trimethoprim or sulfonamides. TMP-SMZ should be prescribed with caution to patients with impaired hepatic and renal functions, folate deficiency, blood dyscrasias, and in older adults because of the higher incidence of severe adverse events. Patients taking TMP-SMZ should be instructed to maintain an adequate fluid intake to prevent crystalluria and renal stones. Drug interactions must be considered when TMP-SMZ is used concomitantly with drugs, including methotrexate, oral anticoagulants, antidiabetic agents, thiazide diuretics, anticonvulsants, and other antiretroviral drugs. TMP-SMZ is classified by FDA as a Pregnancy Category C drug. Animal reproduction studies have indicated an adverse effect on the fetus; no adequate or well-controlled studies in humans exist.



Recommended Antimicrobial Treatment and Postexposure Prophylaxis for Pertussis, by Age Group

Age Group	Primary Agents			Alternate Agent*
	Azithromycin	Erythromycin	Clarithromycin	TMP-SMZ
<1 month	Recommended agent. 10 mg/kg per day in a single dose for 5 days (only limited safety data available)	Not preferred. Erythromycin is associated with infantile hypertrophic pyloric stenosis.  Use if azithromycin is unavailable; 40 to 50 mg/kg per day in 4 divided doses for 14 days	Not recommended (safety data unavailable)	Contraindicated for infants aged <2 months (risk for kernicterus)
1-5 months	10 mg/kg per day in a single dose for 5 days	40 to 50 mg/kg per day in 4 divided doses for 14 days	15 mg/kg per day in 2 divided doses for 7 days	Contraindicated at age <2 months. For infants aged ≥2 months, TMP 8 mg/kg per day, SMZ 40 mg/kg per day in 2 divided doses for 14 days
Infants (aged ≥6 months) and children	10 mg/kg in a single dose on day 1 then 5 mg/kg per day (maximum: 500 mg) on days 2-5	40 to 50 mg/kg per day (maximum: 2 g per day) in 4 divided doses for 14 days	15 mg/kg per day in 2 divided doses (maximum: 1 g per day) for 7 days	TMP 8 mg/kg per day, SMZ 40 mg/kg per day in 2 divided doses for 14 days
Adults	500 mg in a single dose on day 1 then 250 mg per day on days 2-5	2 g per day in 4 divided doses for 14 days	1 g per day in 2 divided doses for 7 days	TMP 320 mg per day, SMZ 1,600 mg per day in 2 divided doses for 14 days

\* Trimethoprim sulfamethoxazole (TMP-SMZ) can be used as an alternative agent to macrolides in patients aged ≥2 months who are allergic to macrolides, who cannot tolerate macrolides, or who are infected with a rare macrolide-resistant strain of *Bordetella pertussis*.

### Other Antimicrobial Agents

Although in vitro activity against *B. pertussis* has been demonstrated for other macrolides such as roxithromycin and ketolides (e.g., telithromycin), no published data exist on the clinical effectiveness of these agents.

Other antimicrobial agents such as ampicillin, amoxicillin, tetracycline, chloramphenicol, fluoroquinolones (e.g., ciprofloxacin, levofloxacin, ofloxacin,

moxifloxacin), and cephalosporins exhibit various levels of in vitro inhibitory activity against *B. pertussis*, but in vitro inhibitory activity does not predict clinical effectiveness. The clinical effectiveness of these agents for treatment of pertussis has not been demonstrated. For example, both ampicillin and amoxicillin were ineffective in clearing *B. pertussis* from nasopharynx. Poor penetration into respiratory secretions was proposed as a possible mechanism for failure to clear *B. pertussis* from the nasopharynx. The minimum inhibitory concentration of *B. pertussis* to the cephalosporins is unacceptably high. In addition, tetracyclines, chloramphenicol, and fluoroquinolones have potentially harmful side effects in children. Therefore, none of the above antimicrobial agents are recommended for treatment or postexposure prophylaxis of pertussis.

#### CLINICAL ALGORITHM(S)

None provided

### EVIDENCE SUPPORTING THE RECOMMENDATIONS

#### TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

Treatment and postexposure prophylaxis recommendations are made on the basis of existing scientific evidence and theoretical rationale. The type of supporting evidence is not specifically stated for each recommendation.

### BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

#### POTENTIAL BENEFITS

Updated clinical knowledge regarding antimicrobial agents available for treatment and postexposure prophylaxis of pertussis including macrolide agents other than erythromycin (azithromycin and clarithromycin) and their dosing schedule by age group

#### POTENTIAL HARMS

Adverse Events and Drug Interactions of Antimicrobial Agents (also see the "Major Recommendations" field and Table 5 in the original guideline document for more information)

Drug	Major Adverse Events		Special Instructions
	Indicating need for medical attention	Indicating need for medical attention if persistent or bothersome	
Azithromycin	<u>Rare:</u> Acute interstitial nephritis Hypersensitivity/anaphylaxis	Gastrointestinal disturbances (abdominal discomfort or pain, diarrhea,	Administer 1 hour before or 2 hours after a meal; do not use with aluminum- or

Drug	Major Adverse Events		Special Instructions
	Indicating need for medical attention	Indicating need for medical attention if persistent or bothersome	
	(dyspnea, hives, and rash) Pseudomembranous colitis	nausea, and vomiting)  Headache, dizziness	magnesium-containing antacids.  Use with caution in patients with impaired hepatic function.  Potential drug interactions
Clarithromycin	<u>Rare:</u>  Hepatotoxicity  Hypersensitivity reaction (rash, pruritis, and dyspnea)  Pseudomembranous colitis  Thrombocytopenia	<u>Frequent:</u>  Gastrointestinal disturbances (abdominal discomfort or pain, diarrhea, nausea, and vomiting)  <u>Infrequent:</u>  Abnormal taste sensation  Headache	Dose should be adjusted for patients with impaired renal function.  Can be administered without regard to meals  Reconstituted suspensions should not be refrigerated.  Potential drug reactions
Erythromycin	Hypersensitivity/anaphylaxis (dyspnea, hives, rash)  <u>Rare:</u>  Hepatic dysfunction  Infantile hypertrophic pyloric stenosis in neonates aged <1 month  Torsades de pointes  Pseudomembranous colitis	<u>Frequent:</u>  Gastrointestinal disturbances (anorexia, nausea, vomiting, and diarrhea)	Dose should be adjusted for patients with impaired renal function.  Potential drug reactions
Trimethoprim-sulfamethoxazole (TMP/SMZ)	<u>More frequent:</u>  Skin rash	Gastrointestinal disturbances (anorexia,	Dose should be adjusted for patients with

Drug	Major Adverse Events		Special Instructions
	Indicating need for medical attention	Indicating need for medical attention if persistent or bothersome	
	<p><u>Less frequent:</u></p> <p>Hypersensitivity reactions (skin rash, and fever)</p> <p>Hematologic toxicity (leucopenia, neutropenia, thrombocytopenia, and anemia)</p> <p><u>Rare:</u></p> <p>Exfoliative skin disorders (including Stevens-Johnson syndrome), Hemolytic anemia (with G6-PD deficiency)</p> <p>Methemoglobinemia</p> <p>Renal toxicity (crystalluria, nephritis, and tubular necrosis)</p> <p>Central nervous system toxicity (aseptic meningitis)</p> <p>Pseudomembranous colitis</p> <p>Cholestatic hepatitis</p> <p>Thyroid function disturbance</p>	<p>nausea, vomiting, and diarrhea)</p>	<p>impaired renal function.</p> <p>Maintain adequate fluid intake to prevent crystalluria and stone formation (take with full glass of water).</p> <p>Potential for photosensitivity skin reaction with sun exposure</p>

## CONTRAINDICATIONS

### CONTRAINDICATIONS

- Clarithromycin and erythromycin are contraindicated if there is history of hypersensitivity to any of the macrolide agents.
- Trimethoprim-sulfamethoxazole (TMP-SMZ) is contraindicated if there is known hypersensitivity to trimethoprim or sulfonamides.
- Because of the potential risk for kernicterus among infants, TMP-SMZ should not be administered to pregnant women, nursing mothers, or infants aged <2 months.

## QUALIFYING STATEMENTS

### QUALIFYING STATEMENTS

The U.S. Food and Drug Administration (FDA) has not licensed any macrolide for use in infants aged <6 months. Data on the safety and efficacy of azithromycin and clarithromycin use among infants aged <6 months are limited.

## IMPLEMENTATION OF THE GUIDELINE

### DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

## INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

### IOM CARE NEED

Getting Better  
Staying Healthy

### IOM DOMAIN

Effectiveness

## IDENTIFYING INFORMATION AND AVAILABILITY

### BIBLIOGRAPHIC SOURCE(S)

Tiwari T, Murphy TV, Moran J. Recommended antimicrobial agents for the treatment and postexposure prophylaxis of pertussis: 2005 CDC guidelines. MMWR Recomm Rep 2005 Dec 9;54(RR-14):1-16. [82 references] [PubMed](#)

### ADAPTATION

Not applicable: The guideline was not adapted from another source.

### DATE RELEASED

2005 Dec 9

### GUIDELINE DEVELOPER(S)

Centers for Disease Control and Prevention - Federal Government Agency [U.S.]

### SOURCE(S) OF FUNDING

United States Government

## GUIDELINE COMMITTEE

Centers for Disease Control and Prevention (CDC) Pertussis Team

## COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

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## FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

## GUIDELINE STATUS

This is the current release of the guideline.

## GUIDELINE AVAILABILITY

Electronic copies: Available from the Centers for Disease Control and Prevention (CDC) Web site:

- [HTML Format](#)
- [Portable Document Format \(PDF\)](#)

Print copies: Available from the Centers for Disease Control and Prevention, MMWR, Atlanta, GA 30333. Additional copies can be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402-9325; (202) 783-3238.

## AVAILABILITY OF COMPANION DOCUMENTS

None available

## PATIENT RESOURCES

None available

## NGC STATUS

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